



High Performance Sustainable Buildings Compliance Summary Checklist for New Construction & Major Renovations

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Guiding Principle	Action Required	LEED V3.0 2009 Credits	ASHRAE 189.1 Parts
1. Employ Integrated Design Principles			
Integrated design	Use a collaborative, integrated planning and design process that:	Dependent on obtaining LEED Gold Certification	Dependent on complying with mandatory (X.3) & other provisions
	Initiates and maintains an integrated project team as described on the Whole Building Design Guide in all stages of a project's planning and delivery, http://www.wbdg.org/design/engage_process.php	ID Credit 2 LEED Accredited Professional	Appendix H: Integrated Design Process / Integrated Project Delivery
	Integrates the use of OMB's A-11, Section 7, Exhibit 300: Capital Asset Plan and Business Case Summary	NA	NA
	Establishes performance goals for siting, energy, water, materials and indoor environmental quality along with other comprehensive design goals and ensures incorporation of these goals throughout the design and lifecycle of the building	SS Credit 1 Site Selection; (other performance goals are met by meeting LEED Gold Certification)	3.2 Definitions: "Owner's Project Requirements" 5.3.1 Site Sustainability: Site Selection 10.3.2.1 Construction and Plans for Operation: High Performance Building Operation Plan
	Considers all stages of the building's lifecycle, including deconstruction.	Dependent on obtaining LEED Gold Certification	10.3.2.3 Construction and Plans for Operation: Service Life Plan
Commissioning	Employ commissioning practices tailored to the size and complexity of the building and its system components in order to verify performance of building components and systems and help ensure that design requirements are met. This should include an experienced commissioning provider, inclusion of commissioning requirements in construction documents, a commissioning plan, verification of the installation and performance of systems to be commissioned, and a commissioning report.	EA Prerequisite 1 Fundamental Commissioning of the Building Energy Systems	10.3.1.2 Construction and Plans for Operation: Building Project Commissioning
2. Optimize Energy Performance			
Energy Efficiency	Establish a whole building performance target that takes into account the intended use, occupancy, operations, plug loads, other energy demands, and design to earn the ENERGY STAR® targets for new construction and major renovation where applicable. For new construction, reduce the energy use by 30 percent compared to the baseline building performance rating per the American National Standards Institute (ANSI)/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., (ASHRAE)/Illuminating Engineering Society of North America (IESNA) Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential. For major renovations, reduce the energy use by 20 percent below pre-renovations 2003 baseline. Laboratory spaces may use the Labs21 Laboratory Modeling Guidelines.	EA Credit 1 Optimize Energy Performance --30% new Buildings or 26% Existing Building Renovations	7.3.1: Energy Efficiency: General. The standard does not distinguish between NC and MR.
	Use ENERGY STAR® and FEMP-designated Energy Efficient Products, where available.	ID Credit 1.1. Innovation in Design-ENERGY STAR®	7.4.7.3 Energy Efficiency: ENERGY STAR Equipment

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On-Site Renewable Energy	Per the Energy Independence and Security Act (EISA) Section 523, meet at least 30% of the hot water demand through the installation of solar hot water heaters, when lifecycle cost effective.	EA Credit 2 On-Site Renewable Energy	7.4.1.1 Energy Efficiency: On-site Renewable Energy Systems
	Per Executive Order 13423, implement renewable energy generation projects on agency property for agency use, when lifecycle cost effective.	EA Credit 2 On-Site Renewable Energy	7.4.1.1 Energy Efficiency: On-site Renewable Energy Systems
Measurement and Verification	Per the Energy Policy Act of 2005 (EPA) Section 103, install building level electricity meters in new major construction and renovation projects to track and continuously optimize performance.	EA Credit 5 Measurement and Verification	7.3.3 Energy Efficiency: Energy Consumption Management
	Per EISA Section 434, include equivalent meters for natural gas and steam, where natural gas and steam are used.	EA Credit 5 Measurement and Verification	7.3.3 Energy Efficiency: Energy Consumption Management (<i>Note</i> : "District Services" includes steam and chilled water)
Benchmarking	Compare actual performance data from the first year of operation with the energy design target, preferably by using ENERGY STAR® Portfolio Manager for building and space types covered by ENERGY STAR®. Verify that the building performance meets or exceeds the design target, or that actual energy use is within 10% of the design energy budget for all other building types. For other building and space types, use an equivalent benchmarking tool such as the Labs21 benchmarking tool for laboratory buildings.	EA Credit 5 Measurement and Verification	10.3.2.1.3.2 Construction and Plans for Operation: Track and Assess Energy Consumption
3. Protect and Conserve Water			
Indoor Water	Employ strategies that in aggregate use a minimum of 20 percent less potable water than the indoor water use baseline calculated for the building, after meeting the EPA 1992, Uniform Plumbing Codes 2006, and the International Plumbing Codes 2006 fixture performance requirements.	WE Prerequisite 1 Water Use Reduction	6.3.2 Water Efficiency: Building Water Use Reduction
	The installation of water meters is encouraged to allow for the management of water use during occupancy.	NA	6.3.3 Water Efficiency: Water Consumption Management
	The use of harvested rainwater, treated wastewater, and air conditioner condensate should also be considered and used where feasible for nonpotable use and potable use where allowed.	WE Credit 2 Innovative Wastewater Technologies; and WE Prerequisite 1 Water Use Reduction	6.4.1 Water Efficiency: Site Water Use Reduction
Outdoor Water	Use water efficient landscape and irrigation strategies, such as water reuse, recycling, and the use of harvested rainwater, to reduce outdoor potable water consumption by a minimum of 50 percent over that consumed by conventional means (plant species and plant densities).	WA Credit 1. Water Efficient Landscaping; Reduce by 50%	6.3.1 Water Efficiency: Site Water Use Reduction 6.3.2.4 Water Efficiency: Roofs 6.4.1 Water Efficiency: Site Water Use Reduction (<i>Note</i> : Allows a maximum of one-third of landscaped land area may receive potable water irrigation)
	The installation of water meters for locations with significant outdoor water use is encouraged.	NA	6.3.3 Water Efficiency: Water Consumption Management
	Employ design and construction strategies that reduce storm water runoff and discharges of polluted water offsite. Per EISA Section 438, to the maximum extent technically feasible, maintain or restore the predevelopment hydrology of the site with regard to temperature, rate, volume, and duration of flow using site planning, design, construction, and maintenance strategies.	SS Credit 6.1 Stormwater design-Quantity Control; and SS Credit 6.2 Stormwater Design-Quality Control	5.4.1 Site Sustainability: Site Development 5.5.1 Site Sustainability: Site Development (<i>Note</i> : More appropriate for major renovations) 10.3.1.3 Construction and Plans for Operation: Erosion and Sedimentation Control

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Process Water	Per the Energy Policy Act of 2005 Section 109, when potable water is used to improve a building's energy efficiency, deploy lifecycle cost effective water conservation measures.	WE Prerequisite 1 Water Use Reduction	6.3.2.3 Water Efficiency: HVAC Systems and Equipment (Note: Forbids once-through potable water usage) 6.4.2.1 Water Efficiency: Cooling Towers
Water Efficient Products	Specify EPA's WaterSense-labeled products or other water conserving products, where available.	WE Prerequisite 1 Water Use Reduction	6.3.2 Water Efficiency: Building Water Use Reduction
	Choose irrigation contractors who are certified through a WaterSense labeled program.	NA	NA
4. Enhance Indoor Environmental Quality			
Ventilation and Thermal Comfort	Meet ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy, including continuous humidity control within established ranges per climate zone AND	EQ Credit Credit 7.1 Thermal Comfort, Design	8.3.2 Indoor Environmental Quality: Thermal Environmental Conditions for Human Occupancy
	ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality.	EQ Credit Prerequisite 1 Minimum IAQ Performance	8.3.1 Indoor Environmental Quality: Indoor Air Quality
Moisture Control	Establish and implement a moisture control strategy for controlling moisture flows and condensation to prevent building damage, minimize mold contamination, and reduce health risks related to moisture.	NA; include within include moisture control within commissioning plan--EA Prerequisite 1 Fundamental Commissioning of the Building Energy Systems	10.3.1.2 Construction and Plans for Operation: Building Project Commissioning 10.3.2.1.4.5 Construction and Plans for Operation: Indoor Air Quality

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Daylighting	Achieve a minimum daylight factor of 2 percent (excluding all direct sunlight penetration) in 75 percent of all space occupied for critical visual tasks.	EQ Credit 8.1 Daylight and Views, Daylight 75% of Spaces	8.3.4.1 Indoor Environmental Quality: Minimum Daylight Zone by Toplighting
	Provide automatic dimming controls or accessible manual lighting controls, and appropriate glare control.	EQ Credit 6.1 Controllability of Systems, Lighting	7.4.6.5 Energy Efficiency: Automatic Controls for Lighting in Daylight Zones
Low-Emitting Materials	Specify materials and products with low pollutant emissions, including composite wood products, adhesives, sealants, interior paints and finishes, carpet systems, and furnishings.	EQ Credit 4.1 Low Emitting Materials, <i>Adhesives and Sealants</i> ; EQ Credit 4.2 Low Emitting Materials, <i>Paints and Coatings</i> ; EQ Credit 4.3 Low Emitting Materials, <i>Flooring Systems</i> ; EQ Credit 4.4 Low Emitting Materials, <i>Composite Wood and Agrifiber Products</i>	8.4.2 Indoor Environmental Quality: Materials
Protect Indoor Air Quality during Construction	Follow the recommended approach of the Sheet Metal and Air Conditioning Contractor's National Association Indoor Air Quality Guidelines for Occupied Buildings under Construction, 2007. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials. After construction and prior to occupancy, conduct a minimum 72-hour flush-out with maximum outdoor air consistent with achieving relative humidity no greater than 60 percent. After occupancy, continue flush-out as necessary to minimize exposure to contaminants from new building materials.	EQ Credit 3.1 Construction IAQ Management Plan, During Construction	10.3.1.4 Construction and Plans for Operation: Indoor Air Quality Construction Management
Tobacco Smoke Control	Implement a policy and post signage indicating that smoking is prohibited within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes during building occupancy.	EQ Prerequisite 2 Environmental Tobacco Smoke (ETS)Control	8.3.1.4 Indoor Environmental Quality: Environmental Tobacco Smoke
5. Reduce Environmental Impact of Materials			
Recycled Content	Per Section 6002 of the Resource Conservation and Recovery Act (RCRA), for EPA-designated products, specify products meeting or exceeding EPA's recycled content recommendations. For other products, specify materials with recycled content when practicable. If EPA-designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. EPA's recycled content product designations and recycled content recommendations are available on EPA's Comprehensive Procurement Guideline web site at <www.epa.gov/cpg>.	MR Materials and Resources Prerequisite 1 Storage and Collection of Recyclables; MR Credit 4.1 Recycled Content, 10% (post consumer = 1/2 pre-consumer); and MR Credit 4.2 Recycled Content 20% (post consumer = 1/2 pre-consumer)	9.4.1.1 Atmosphere, Materials, and Resources: Recycled Content

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Biobased Content	Per Section 9002 of the Farm Security and Rural Investment Act (FSRIA), for USDA-designated products, specify products with the highest content level per USDA's biobased content recommendations. For other products, specify biobased products made from rapidly renewable resources and certified sustainable wood products. If these designated products meet performance requirements and are available at a reasonable cost, a preference for purchasing them shall be included in all solicitations relevant to construction, operation, maintenance of or use in the building. USDA's biobased product designations and biobased content recommendations are available on USDA's BioPreferred web site at < www.usda.gov/biopreferred >.	MR Credit 6 Rapidly Renewable Materials and MR Credit 7 Certified Wood	9.4.1.3 Atmosphere, Materials, and Resources: Biobased Products
Environmentally Preferable Products	Use products that have a lesser or reduced effect on human health and the environment over their lifecycle when compared with competing products or services that serve the same purpose. A number of standards and ecolabels are available in the marketplace to assist specifiers in making environmentally preferable decisions. For recommendations, consult the Federal Green Construction Guide for Specifiers at < www.wbdg.org/design/greenspec.php >.	MR Credit 4.1 Recycled Content, 10% (post consumer = 1/2 pre-consumer); and MR Credit 4.2 Recycled Content 20% (post consumer = 1/2 pre-consumer); EQ Credit 4.1 Low Emitting Materials, Adhesives and Sealants; EQ Credit 4.2 Low Emitting Materials, Paints and Coatings; EQ Credit 4.3 Low Emitting Materials, Flooring Systems; EQ Credit 4.4 Low Emitting Materials, Composite Wood and Agrifiber Products; and MR Credit 6 Rapidly Renewable Materials and MR Credit 7 Certified Wood	8.4.2 Indoor Environmental Quality: Materials 9.4.1.2 Atmosphere, Materials, and Resources: Regional Materials 9.4.1.3 Atmosphere, Materials, and Resources: Wood Materials
Waste and Materials Management	Incorporate adequate space, equipment, and transport accommodations for recycling in the building design. During a project's planning stage, identify local recycling and salvage operations that could process site-related construction and demolition materials. During construction, recycle or salvage at least 50 percent of the non-hazardous construction, demolition and land clearing materials, excluding soil, where markets or onsite recycling opportunities exist. Provide salvage, reuse and recycling services for waste generated from major renovations, where markets or onsite recycling opportunities exist.	MR Credit 2.1 Construction Waste Management, Divert 50% from Disposal; and MR Materials and Resources Prerequisite 1 Storage and Collection of Recyclables	9.3.1 Atmosphere, Materials, and Resources: Construction Waste Management 9.3.4 Atmosphere, Materials, and Resources: Storage and Collection of Recyclables and Discarded Goods
Ozone Depleting Compounds	Eliminate the use of ozone depleting compounds during and after construction where alternative environmentally preferable products are available, consistent with either the Montreal Protocol and Title VI of the Clean Air Act Amendments of 1990, or equivalent overall air quality benefits that take into account lifecycle impacts.	EA Prerequisite 3 Fundamental Refrigerant Management and EA Credit 4 Enhanced Refrigerator Management	9.3.3 Atmosphere, Materials, and Resources: Refrigerants

Framework courtesy of Mike Myers, Myers Verde Company

Note: In instances identified with a blue background, the sustainability standard offers more flexibility than the Guiding Principle allows. Specifications will need to direct the project to comply with the sustainability standard in a certain way for the project to remain compliant with the Guiding Principles.